

**ABSTRACT**

A desulfurization system employing a system of fluidizable and circulatable solid particles to desulfurize a hydrocarbon-containing fluid in a fluidized bed reactor. The solid particulate system includes solid sorbent particles operable to  
5 remove sulfur from the hydrocarbon-containing fluid stream and solid catalyst particles operable to enhance the octane of the resulting desulfurized hydrocarbon-containing fluid stream. The solid particulate system can be circulated between a reactor, regenerator, and reducer, to thereby allow for substantially continuous desulfurization in the reactor.